

# AVIATION

*The Oldest American Aeronautical Magazine*

JUNE 13, 1927

Issued Weekly

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The "Columbia" a Few Hours Out From Roosevelt Field En Route To Germany

VOLUME  
XXII

## SPECIAL FEATURES

NUMBER  
24

CHANCE VUGHT PRODUCTS MAINTAIN HIGH STANDARDS  
THE ANODIC OXIDATION TREATMENT OF DURALUMIN  
BIRD-LIKE DESIGN FEATURES BONNEY SEAGULL

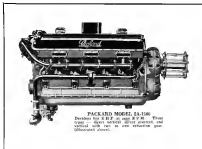
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Garden City, N. Y.



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## With the Editor

The third airplane non-stop Atlantic crossing is now an accomplished fact and the art of aviation is advanced to another record mark. The first flight of Alcock and Brown from Newfoundland to Ireland showed that trans-Atlantic flying was possible. Captain Lindbergh's New York to Paris flight not only confirmed that possibility in a most spectacular manner but established a new non-stop distance record for heavier than air machines. The Chamberlin-Lavine New York to Germany crossing is still another step forward. It has lengthened the non-stop distance record, more or less stimulated the layman's belief that luck was a great governing factor in Captain Lindbergh's achievement, increased the weight per horsepower at the Wright Whirlwind and proved that trans-Atlantic flying is not a commercial aviation day dream. Two great prizes cannot be given to both recent flights. They have created a confidence in aircraft with the public that will be invaluable both here and abroad. American pilots, designers and engine builders may rightfully take pride in the feat. It once more gives the United States a prime position in aeronautical progress and development.



## Chamberlin Flies Bellanca Plane to Germany

Powered by a Wright "Whirlwind" Engine the "Columbia" Carries Pilot and Passenger to New World's Non-Stop Distance Record

FOR THE second time within the last thirty days an American built airplane with an American born pilot at the controls has taken off from the shores of America and headed its way to a safe landing on the mainland of Europe. This time it was the Bellanca monoplane "Columbia", built by the Wright Aeronautical Corp. and powered by a Wright "Whirlwind" engine, that rose from Roosevelt Field, L. I., at 4:06 A. M. Saturday June 6 and carried its pilot, Clarence D. Chamberlin and a passenger, Charles A. Levine, to Berlin, Germany where it landed at midnight Sunday June 7 and established a new world's non-stop distance record. The "Columbia" traveled 3,902 mi. in 43 hr.

The ultimate goal of the trans-Atlantic race was the city of Berlin but a shortage of gasoline brought about the landing at Berlin. After taking on fuel at Berlin Chamberlin took the "Columbia" into the air again but owing to the engine being out of commission by the landing and going wrong in bad weather, a second forced landing was made in a marsh near Kottbus, Germany, and the passenger bailed, thus halting temporarily the flight to the German capital.

### Carried 435 Gal. of Gasoline

Soon after Chamberlin had descended safely at Roosevelt Field that he would take off, Capt. F. Selmer, Chairman of the Control Commission of the National Aeronautics Association, installed a kerosene tank in the Columbia and asked it. The pilot then made a final inspection of his plane while food supplies were prepared and placed aboard. They included ten chicken sandwiches made with tinned, rare broiled, two bottles of chicken soup, a bottle of coffee, half a dozen oranges and three tins of the regulation United States Army "tinned" or emergency ration.

The 399-gallon tank in the fuselage was loaded to the brim. On top carried a number of drums that held an additional sixty-five gal., or a total of 465 gal. Shown apparently mused the effect of the tank was a rubber collapsible raft and a pair of water-tight suit for the use in case the plane was forced down. A Very pistol, which fires a bright flare capable of lighting the sky for a considerable distance, water flasks, which expire as soon as they touch water, red flares, a box of safety matches and an electric flashlight with two spare batteries were in ready.

Little time was left in getting the monoplane on the runway and the crew was kept at a safe distance by the large



Chamberlin and Levine just before the start

force of motorcycle and foot policemen. Chamberlin made one attempt to get the "Columbia" into the air and succeeded the second time. On the first attempt he throttled his motor and turned back when some spectators got in the path of the ascending plane. The final take-off was a superb bit of pilot-



The "Columbia" off the ground and on its way to Germany.

age. The final load of the "Columbia" when she took off was approximately 5,539 lb., an average total weight of 5,536 lb. of Captain Lindbergh's plane.

The plane still carried the notice that the flight was under the auspices of the Roosevelt Chamber of Commerce. On the upper part of the radiator was the figure "Columbia", painted in red. It offered a striking contrast to the silver gray of the rest of the machine. The house number 55 101 and the racing figure 189 were painted on the side in black. The word "Panor" on the fuselage had been painted out.

One of the features of the flight was the engine and landing of the steaming "Columbia" based for New York. Chamberlin brought the "Columbia" down to within 200 ft. of the water, circled the arena probed and then spun up to the eastward.

The first landing at Berlin took place without any trouble whatever. Men working in the fields near by—some of them

by curious chance a German air mechanic out for a holiday on his mother's farm—gave him fuel and helped the stream to get under way again.

When the first landing, which had been accomplished at Tempelhof Field in Berlin five twelve hours or more, suddenly learned of the "Columbia's" second forced landing, a road rush for Berlin ensued. The first plane to start for the scene of the making was a German government machine with the Brandenburg representative in the Ministry of Transportation, Dr. W. F. Thode, commander of the American Embassy, and several officials of Luftwaffe. Ambassador Scherman promptly desired to join the party, but was dissuaded by German functionaries on the ground that it was better for him to remain in Berlin to organize details of the welcome for the news. Eight other planes loaded with German and foreign newspaper men, photographers and movie operators were also staged their way to the scene of the official end.

### Air Services in Switzerland Developed

The first regular air service in Switzerland was started by the Ad Astra Aero Co. at Zurich in 1918, when that company's single-seater 1200 light aircraft, between Zurich, Bern, and Lucerne, and carried a few passengers and 25,000 pieces of mail, and it was lauded with the gradually widening experience that longer distances would have to be flown over regularly and at high speed. When in 1924 this company extended its service to Munich and Vienna.

Later cooperation arrangements were developed between Swiss and other companies. The Ad Astra companies with the Geneva Lausanne company in the Geneva-Basel service—the Swiss company operating to Zurich and the German company from that city outward. The two companies cooperate on the new way in the Geneva-Lausanne-Basel-St. Gallen-Basel-Bern-Basel service, the Ad Astra serving between Geneva and Zurich. It is planned to extend the service to Amsterdam—Geneva-Milan-Berlin-Moscow—using the German company's equipment and personnel. Another line of cooperation is illustrated by the arrangement by which the other Swiss company, the Rand Air Service Co., and the Royal Aviation Co. of Holland, operate the new Geneva-Basel-Basel-Basel-Basel-Basel service. The Rand Air Service Co. operates with those of the other between Basel and Rotterdam.

The Swiss air channel between the Alps and the Jura

Mountain is especially suitable to traffic between central and northern Europe and developments point to the increasing importance of Swiss cities as air traffic centers. Efforts are being made to achieve the agreement in all directions of reliable and dependable service by air.

The necessary subsidies for the air services have been provided largely by the customs, excise and agricultural, the Federal contribution being limited to some \$50,000 Swiss francs (\$10,000) for the service of mail and passengers regularly of service. It is planned to have the national government assume greater authority and pay a larger subsidy. Lightships, signal stations, emergency field, for night flying and improved weather reporting, are subjects of public discussion.

The Second International Aeronautical meeting will be held between August 14 and 21, 1937 at Zurich. Its program will be national and international in nature, and great interest is expected to be aroused.

### Spanish Pilot to Try Spain to New York Hop

Plans are now being made by Commander Franco of the Spanish Army, who recently flew from Spain to Argentina, for a flight from Coruna, Spain to New York. He expects to take off next August and will pilot a Spanish-built plane equipped with two 700-hp. engines and capable of developing power for a cruising radius of 2,400 mi.



Map showing of the "Columbia's" route according to New York City Times

(New York Times)



Three Chance Vought VE-7's in the Cuban Air Service

## Chance Vought Products Maintain High Standard of Quality and Performance

*From the Original VE-7 Model to the New "Corsair," Which Holds Four World's Records, Soundness of Design has Been a Governing Factor*

**A**MONG THE leaders in the aeronautical industry in the United States the name Vought stands high. To those who are familiar with modern airplanes, Vought is the symbol of quality, an immediate indication of excellent workmanship, sturdy construction, proven serviceability, fine workmanship, and performance are given more to the successful design.

The Vought organization always let their product tell its own story, and there was no exception. The soundness of design used by the Vought engineers has always resulted in planes with unsurpassed all-around performance for the class of work to be done.

The aeronautical industry in general has had many ups and downs since the World War, but the Chance Vought

Vought planes in the industry to use them—clear superiority in the particular field for which they were designed.

The Vought thought and leadership in aeronautics is well exemplified by their adoption of air-cooled engines exclusively several years ago. More air-cooled engine airplanes have been built in the Vought factory than by any other manufacturer in the country and the soundness of this policy has been conclusively demonstrated in a spectacular manner.

Credit should also be given the Vought organization for equipping the Navy's air-cooled engine program which has resulted in the manufacture of the Wright R-1200 engine, and the Pratt & Whitney "Wasp" engine. These engines have proved to be a real development in American power plants, and it was the requirement of such an engine for the newest Vought, the "Corsair" that caused the Navy Department to enter this particular phase of development.

### Each Model an Advance in Design

Beginning with the VE series in 1918, down through the VO series and to the present "Corsair" type, each Vought model, by its advanced design, proven performance and high quality, has immediately established its mark and resulted in production runs in the Vought plant.

The first Vought model, the VE-5, was built for the U. S. Army Air Service, entered in the Army competition for advanced training planes, and was easily the winner. A large number of this model were built for the Army and most of them are still in service. A number of the VE series were also purchased by the U. S. Navy for advanced training and money purposes.

The first U. S. aircraft carrier, the U.S.S. "Langley," was originally equipped with observation planes of the Vought VE-6 type exclusively. Many of these planes are still in operation on the "Langley," and have demonstrated their

ability to stand up for many years under the strenuous action of deck landings with landing gear.

The first of the VO series was the Model VO-1, a two-place observation plane of the standard land-o-water type. This model was adopted by the U. S. Navy as the exclusive two-engine seaplane equipment for the catapult equipped battleships and fleet mail cruisers, two planes of each type being assigned to each ship.

The service given in that most strenuous of all aircraft tests, catapulting, was so satisfactory that the Navy has purchased some 300 of these planes for many other types of service, including use at Naval Reserve Air Stations. This model VO-1 is also being used in the Cuban Air Service, the Peruvian Air Service, and in several other South American countries.

### Performance Proves the Quality

One of the last of the VO series, the VO-7, was a single engine training fighter. This model was the first production type in which a supercharger had been installed with an air-cooled engine. The performance of this ship is remarkable, particularly at altitude. The ceiling of this plane is 26,000 ft., and the speed at 15,000 ft. is over 160 m.p.h.

The adoption of Vought planes, the Model VO-4, by the United States Coast Guard as the first plane equipment for their newly formed Air Service, is also indicative of the quality of service given by these sturdy planes. This selection was made only after a number of Vought planes had been borrowed from the Navy, and given strenuous tests for a considerable period.

The excellent flying qualities and wide performance shown by Navy flying personnel is well indicated by the operating period established by Vought planes in the U. S. Navy during the fiscal year 1926. During this period, in the U. S. Navy alone 25,408 hours, approximately 8,800 miles of flying, was done in Vought planes. This is three times as much as was done in the Navy in any other type built since

### The Pilots of the Record Breaking "Corsair"



Lt. Col. G. R. Henderson, U.S.N. Lt. Col. E. W. Callaway, U.S.N.



Lt. Col. J. D. Brown, U.S.N. Lt. Col. E. W. Callaway, U.S.N.

the World War. And it did not include the hours flown in the U. S. Army Air Service or the Cuban Service and in the Air Services of several countries in South America.

### Vought "Corsair" Now in Production

The latest Vought model, the "Corsair" is now in production and even in the short time it has been in the air it has far exceeded the previous model which had been in slightly successful. This plane incorporates many new and in-



Chance Vought Corsair

novating features and is designed around the Pratt & Whitney "Wasp" air-cooled engine of 405 hp.

The first plane of this model, after having been put through all the strenuous service tests by Navy test pilots, including tests as landplane, as seaplane and far outperforming all of which required about six months of almost continuous flying, established four new World's Records within a period of five weeks.

On April 16, Lt. Col. G. R. Henderson, U.S.N., flying this "Corsair" which had been used throughout the tests, made a new World's Seaplane Altitude Record of 25,176 ft., carrying a ballast load of 1300 lb. exclusive of pilot, fuel, equipment, etc.

On April 25, flying the same stock plane, Lt. Col. E. W. Callaway, U.S.N., made a new seaplane speed record for 390 mi. around a closed course of 25 mi., averaging the same ballast load. The average speed obtained was 147.283 miles per hour.

A week later, on April 30, Lt. Col. J. D. Brown, U.S.N., made the same seaplane and with the same plane averaged 150.675 m.p.h. for 500 mi.

### New World's Seaplane Speed Record

A fourth World's Record was made on May 12, when Lt. Col. E. W. Callaway, U.S.N., took the same plane, and flying around a short course of only 15 mi., made a new World's Seaplane Speed Record for 2000 mi. when he averaged 130.61 m.p.h., 57 m.p.h. more than the former record.

Among the many interesting records shown by the "Corsair" Navy craft, was that this plane as a two-seater with 500 lb. more weight load than the latest type single seater, showed only a few miles lower top speed at altitude, while its climb, endurance, maneuverability, and altitude performance, it actually was superior to the present type fighters with the same engine.

Features of the Chance Vought airplanes are printed on the outer span of this issue.



Assembly Base in Chance Vought factory

Corp. has enjoyed a steady business, which has increased each year, and still kept its facilities well in line with the gradual growth of the industry. The steady demand for



Carson Lindbergh with Mr. Hatcher, the American aviator who flew across the Atlantic Channel in 1926 and American Consul.

## N. A. C. A. Publishes Airfoil Report No. 260

Report No. 260, covering "The Effect of a Flap and Airfoil on the N. A. C. A. 16-6 Airfoil Section," compiled by George J. Higgins and Benjamin N. Jones, for the National Advisory Committee for Aeronautics, contains the results obtained at the Langley Memorial Aeronautical Laboratory on an N. A. C. A. airfoil, fitted with a flap and airfoil, and tested in the variable density wind tunnel at a density of 30 atmospheres. Airfoil characteristics are given for the model up to 45 deg. angle of attack with the flap set at various angles, and also with the airfoil set at similar angles. The approximate lift distribution and the center of pressure variation along the span are determined with the model at 15 deg. angle of attack and with the airfoil fixed (about 50 deg. Approximate rolling moment and yawing moment coefficients are determined for the various airfoil settings).

A comparison of the calculated angles of zero lift and the calculated lift and moment coefficients with those observed is given in the appendix. Report No. 260 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

## European Air Firms to Experiment in Brazil

According to advice from Vice Consul R. Cohen, Rio de Janeiro, made public by the Department of Commerce, aerial navigation in Brazil has been a subject of discussion for several years but little has been done toward the establishment of service until recently, when three European companies were granted permission by the Brazilian Minister of Transportation to undertake aerial navigation as an experimental basis.

The Junker company was recently given permission to undertake a proposed flight from Buenos Aires to Rio Grande and Porto Alegre. Previously, the Minister of Transportation issued a contract with the Gotha-Breda plant. Before an aerial, postal and passenger service between different parts of Brazil; one to extend from Rio de Janeiro to Rio Grande stopping at Santos, Pernambuco, São Francisco, and Pernambuco, and between Rio Grande and Santa Vitória do Palmar, extending on to Montevideo (special mail plan is acceptable to the Uruguayan Government). The latter company has recently been authorized to commence aerial navigation in Brazil on an experimental basis. All of these companies are working the necessary preparations to carry out their plans, and it is expected in Brazil that aerial flights will be commenced in the near future.

## Barnard Field Dedicated

The official dedication of Hunter's Memorial Airport and base of the Government National Guard, 13thth Observation Squadron, was held on Saturday, May 13, at Barnard Field. More than fifty planes, including the latest National Guard unit, took part in the ceremony. General Benjamin D. Fox, Commandant of the 13thth Observation Squadron, was the official representative of the Army. Assistant Secretary of the Navy for Aeronautics Edward F. Warner, piloted by General B. G. Lupton, arrived at the field at one o'clock. General B. G. Lupton, chief of the design section of the Navy Dept. was present as the guest of the Post & Whitney Aircraft Co. and was largely responsible for the presence of a number of Marine Corps and Navy Department planes. It was through his efforts that the "Ion Angles" was brought to Hartford.

The Marine Corps had twelve private planes, a Navy Ford Transport and an auxiliary plane at the dedication. Four of the private planes were equipped with Post & Whitney War engines, under the command of Major Barnard. The Navy Department was represented by Commander Frank W. A. Young (VE-8) Lieutenant Commander Miles in a D-11, and the 13thth Observation Squadron, Barnard and Henderson, of the 13thth Air Station in private planes, preceded with War engines.

The program of the afternoon started with an inspection of the Barnard Field equipment, which proved to be very efficient for a municipal and National Guard field. Following the inspection, Major Lupton, Commandant of the Government National Guard unit, led a formation of National Guard planes in maneuvers on the field. This was followed by formation flying by the Marine Corps Squadron and landing showing by Lieutenant McCallum of the Marine Corps in a Curtiss Hawk and Lieutenant Elmer, of Army Aviation, for the National Guard, in a V-8. Throughout the entire ceremony, the "Ion Angles" was circling over the field in constant radio communication with those below. Next came a flying exhibition by Lieutenant Barnard, of the Marine Corps, and an appearance was between three of the Marine Corps planes. The program ended with a parachute jump by one of the National Guard members.

During the afternoon, Colonel Air Transport, Inc. arrived planes and visitors on short hops in its three-engine Fokker plane. Governor Franklin was a prominent figure in the dark performance. A crowd of between 2,000 and 2,500 persons attended the dedication.

Governor Franklin gave a dinner for the leading officers and civilians during the evening and the National Guard entertained the planes at a dinner.



H. M. King (right) from first meeting on address after having made the important aviation position, Gen. of Barnard, as Barnard's assistant in the Navy Dept. in the air in the great air lot.

## Varney Air Mail Service Hits Stride

Completes Year of Successful Operation Over Route C.A.M.S. Despite Extreme Adverse Weather Conditions

By CHAS. T. WRIGHTSON

**A**FTER SOME difficulties, service over Route C.A.M. No. 5 from Salt Lake City to Reno, Wash. got under way on June 1, 1926 for a year of unobstructed service, operating with 4 Wright Whittaker 44-B engine-driven biplane planes.

It is a joy at this writing that the service has been in operation and a maximum possible delivery of performance has resulted. The winter of '26 and '27 was one of the worst experienced in the Northwest. Under normal conditions a service operating even that of the past year will be performed.

Salt Lake City is the eastern terminus of the route with Reno, Wash., in the northwestern. The run is out of Reno, Idaho, where is located the main operating and repair depot.



Service with Salt Whittaker after one year's service on Route C.A.M. 5

and forms the base for the operating personnel. Leaving Salt Lake City on arrival the weekend from central to the west, the flight is via Reno, Idaho, to Reno, Wash., arriving at the latter point in time to connect with fast mail train to the principal cities of the Northwest, namely, Seattle, Portland, and Spokane. The Washington-Salt Lake City route is upon the early morning arrival of the mail from those same points and connects with the New York based transcontinental at Salt Lake City.

Then, mail leaving Seattle, etc., on Saturday evening arrives in Salt Lake Monday afternoon, Chicago early Monday morning and New York Monday afternoon. Seven day service was established over this route on April 16th last.

For the past three months of operation an efficiency record in excess of 99% was maintained—this, of course, approximating 190% through the heavier mail and dropping sharply below in the winter.

The efficiency of the service may be appreciated when the following figures are quoted:

Performance of 7 J.A.B. Whittaker engine-driven biplane from June 1st to April 30th—  
328 hrs. 45 min. of flight, 10,000 mi.  
Cost of repair parts for engines \$280.00  
2 second handlings as account of engine failure.  
1 aircraft plane failure (gasoline fuel).  
11.6 gal. gasoline per h.  
22.2 gal. oil per hour (including all change at 12 hrs.) or .88 quarts per hour between changes.

Of the two engine failures, the first was due to the breakdown of a piston, the other was due to improper oil being used. When it was impossible to obtain our regular lubricant, Zenith Aero Oil No. 1 & 2 Oil was used. Both have been tested and proved by rapid inspection. Engines are overhauled at 300 hours and valves are ground at 150 h. To date, the only replacements have been complete sets

of them in the second overhaul of each engine, on west gas and landing, two engines, on west side springs, four rocker arms and on valves. All amounting to a cost of \$280.00.

One noteworthy incident must be given to the Wright Whittaker engine, that first winning time for mail in daily service throughout the winter.

We were anticipated into a hole of circumstances that will long be remembered—we started everything on the Whittaker to get us out. The Wright Aero Corp. delivered the goods in record time and saw our past year's performance of out-tuned unwhittaker service in the most fitting testimony that we are thankful of its adequately service our belief in the quality of the Wright Aero Corporation product.

All credit for the past year's success must be given to the pilots and mechanics forming the operations group. The operating personnel under the direction of Chief Pilot and Engineer Lewis B. Goddard consists of pilots, Paul P. Scott, who was one of Otto Prager's first, C. C. Price, Paul A. Amberg, O. R. Bush, and Joe W. Telford, the mechanical crew of Chief Mastercraft Chas. De Vries, Eugene Melchior, Frank Kauter, Guy Gougeon, L. H. Pifer, of Boise, E. C. Larson of Chase and F. E. (Honey) Barnard, Salt Lake City.

A word here must be said of our periodic post, present and future, and part of the maintenance comparable to it. Trade Master Frank P. Ball with office in Seattle, Wash., has under him a capable staff of men working efficiently upon the problem of putting the scheduled value of our mail in the most effective manner before the mailing



Proven W-11 plane now in temporary service on route C.A.M. 5.

public. With branch offices in Portland and Spokane and represented by Will H. Brown and Charles V. O'Connell respectively, these men are largely responsible for the 3,000 lbs. of our mail carried in the past year and for the growth from the first month of '25 to daily to the present load of 100 lbs.

With the sales from bettering hourly and another possible reduction in postage rate, rapidly loads should soon be a reality. Also, the fact that the mail is being carried in a supplementary to increasing the gross income. What the legend post will be in next with this situation is hard to predict but that we will not have long to prepare in everything the amount of option.

## Fifty Thousand Attended Aeronautical Show

It is estimated that over 50,000 people visited the Aeronautics Exhibit held in Washington, D. C., from May 2 to 6. Over 4,000 planes were given flights.







The new Junkers Passenger Monoplane G31 taking off

## Junkers Builds New Passenger Monoplane

Has Three Engines, a 700 Mile Cruising Radius and Luxurious Passenger Accommodations for Fifteen People

THE NEW Junkers passenger monoplane, type G31, represents the experience acquired in the research department, as well as that gained in the manufacture and operating branches of the Junkers Corporation. Like all other Junkers machines the G31 is of the cantilever, all-metal, all-metal construction, and fitted with three engines: one in the center and two on the wings. The total horsepower delivered by this power plant is 1200 hp. and the total weight of the machine loaded is 915 lbs. Fully loaded, this plane has a cruising range of 700 mi. and a cruising speed of 125 m.p.h. The span of the wings is 80 ft. The length of the plane is 66 ft. and its height is 20 ft.

### Passenger Cabin is 7 ft. Wide

The cabin which is provided for the accommodation of the passengers is exceptionally spacious being about 7 ft. wide. On account of the large dimensions of the cabin it has been possible to provide three freight compartments in this machine in which can be stored all freight and baggage so that no cargo need be carried by the passengers in the cabin.

Underneath the passenger cabin, on each side of the control tower, are two baggage compartments where are the largest wheeled trunks can be easily stored. These compartments are electrically illuminated. In addition to the baggage compartments there is also a roomy freight compartment where

heavy freight and mail can be stored, and this compartment is also used for housing an auxiliary power plant consisting of a small motor-driven 150 watt generator which supplies the electrical illumination when the plane is on the ground.



Side view of the Junkers G31

This machine during this passenger also drives a compressor which provides compressed air for starting the engine on the ground. The electrical generating plant which supplies the electrical energy for the radio lighting and signaling apparatus

in addition to the operation of landing and signaling lights. Of course, except when the machine is on the ground the electrical generating plant is driven by a generator provided for this purpose. Two additional generators are also provided for driving two auxiliary pumps, either one of them being sufficient for feeding the three engines—this is an addition to a hand-operated pump.

The longitudinal stability of this machine is rather remarkable. An adjustable stabilizer is used which allows the passengers to move about freely without disturbing the stability of the machine in flight. In the emergency the double rudders provided in this machine, will, in case the use of the ailerons should stop, still keep the plane under perfect control, only a slight pressure on the rudder pedals being needed for this purpose. Any slight unbalanced pressure on the rudders is easily compensated from the cockpit.

The tail-end of the fuselage is so rumped that there is a passage leading to the entrance and of the tail, and the fuselage rear end-taper which carries the rear light is fitted with two handles which allow it to be easily detached for inspection purposes.

The double cockpit in front of the machine offers the exceptionally striking feature of being easy and comfortable



View of passenger cabin of the G31

for the pilots to sit in, and all the instruments are conveniently arranged in front of them.

The propellers and on the plane are of the Junkers type of metal forged construction. Everything in this plane is made of metal and even the landing-gear are cast out of light metal. The only non-metal parts used in this plane are the pilots' seats and the tires, besides, of course, the cabin upholstery.

The passenger cabin is divided into three (three) compartments. The first has two beds of the same dimensions as ordinary sleeping car bunks, and has two very comfortable club-seats. The second has four club seats and the third has a sofa which seats two persons and a club chair. A door opening in the third compartment leads to the toilet.

### Compartments Neatly Illuminated

Each compartment is provided with efficient ventilation insured by the circulation of warm air, and is brightly illuminated at night. Large windows on either side of the cabin provide an unobstructed view of the passengers for the passengers, and plenty of sunlight. These windows are arranged by means of a cranker device which allows the glass panes to slide longitudinally in their frames. In order to provide for the maximum comfort of the passengers the exhaust pipes of the engines are led all the way back, past the rear of the cabin, thus insulating the nose of the engine completely. Smaller accommodations are provided for about passengers, and four additional chairs can be placed

in the interior of the cabin, thus providing very comfortable accommodations for fifteen passengers.

In designing the passenger cabin of this machine, the comfort of the passengers has been given the most consideration. The idea being to give them plenty of room to move around, and comfortable big chairs to sit in. Moreover, by changing the seats, more passengers can be accommodated. The service is designed with a view toward being ready to do long transportation and night flying for passenger service. As a freight-carrying machine this type is exceptionally good.

The Junkers Corp. of America has recently opened offices at 305 Madison Ave., New York City.

### Air Mail Stamps in Honor of Lindbergh

Postmaster General New has announced that a special air mail stamp, of ten-cent denomination, be issued in honor of Capt. Charles A. Lindbergh and his epoch-making flight across the Atlantic.

The Postmaster General said in making public his decision: "The Post Office Department has neither funds or medals or authority for bestowing distinctions with which to mark the achievement and respect we hold for our air mail pilot who has made such a noble contribution to the science of aviation. The only appropriate thing we can do is to issue a stamp in his honor."

The new stamp will carry a portrait of Captain Lindbergh since the law prohibits the use of the portrait of a living man upon a stamp. It will have for its central design, however, a representation of his plane "The Spirit of St. Louis," which so successfully carried him on his journey across the sea, and which is Lindbergh was the other half of "his."

The new stamp will replace the regular ten-cent air mail stamp design now issued to postmasters and will be available for issuance within a short time. They will be placed on sale first at the St. Louis, Mo., post office on the date of the Lindbergh exhibition in that city. On the same day they will be available for the benefit of stamp collectors at the Postmaster Agency in Washington, and to other offices throughout the country as fast as production will permit.

Among the top of the stamp is white Roman letters will be the words "United States Postage" with the words "Lindbergh-Air Mail" directly beneath. At the left of the portrait of the stamp will appear the coat line of the Spirit of St. Louis, in contrast with that of Europe on the right side, with a shield below depicting the course of the flight, beginning with the word "New York" and ending with the word "Paris." At the bottom of the stamp is shaded letter is the word "Spirit" and in red letters across the bottom is the word "Post." The stamp will be printed in blue, the color of the present 10-cent air mail stamp, and the same size 7/16 by 1 1/16 inches.

### Explosion Flight Through Eastern Siberia

Russian journals report a recent expedition flight through Eastern Siberia between Irkutsk and Yakutsk with a Russian Russian aviator "The Spirit of St. Louis" by the name of the Lena River along the great Russian landing station Khatanga and Ustka. It is intended to establish a regular passenger, freight and mail air traffic along this route which is to be used between Irkutsk and Ustka and then to the gold fields of the Alaskan territory.

### Max Henne Joins Pacific Air Transport

Max Henne, former air mail pilot, has been appointed chief mechanic of the Pacific Air Transport. Mr. Henne will be a short time ago was chief mechanic for the government air mail at Concord Field, near San Francisco. He has been engaged in various work since then. His position is well known to all, and he will serve as a pilot, representative of San Francisco for the company, one of his responsibilities and show how to broaden his activities.



Start of the National Balloon Race at Akron, O., as seen from the air

## Van Orman Wins National Balloon Race

*Sails with aide, W. F. Morton, to Beach near Bar Harbor, Me.  
E. J. Hill is Second and Captain Kepner Captures Third Place*

**I**F WINNING the National Balloon Race, held on Memorial Day at Akron, O., for the third time, World T. Van Orman gained personal possession of the Lindbergh Cup. Van Orman led on his ride W. F. Morton and together they piloted the Goodyear Rubber Co. entry down Akron to a sandy beach near Bar Harbor, Me., a distance of some 715 mi. E. J. Hill and his aide A. E. Selbinger in the Delbert Flying Club No. 3 captured second prize in coming to earth at Storerham, Me. when they had covered about 625 mi. Third honors went to Captain Kepner and his aide, W. O. Burrows in the Army No. 3 which came to earth at Biddeford after a flight of about 515 mi.

The three leading contestants will have the privilege of representing the United States in the Gordon Bennett International Race which, on account of Van Orman's victory last year, is to be held this year from Denver, Colo., on Sept. 24. A strenuous effort will of course be made to keep the Cup in this country for another year.

### Largest Entry List on Record

Of incidental importance was the fact that the race this year drew the largest entry list that has ever taken part in a race in this country. Entries contestants took part, include ten four Army, three Navy, and eight civilian. Secretary Warner was out to see the Berry men off, and General Patrick honored the Army pilots with his presence.

As has been customary in the National Race for the last few years, the balloons were inflated in 25,000 cu. ft. capacity, which makes the race available to individual pilots of even comparatively limited means.

The race management, under rather difficult conditions, was without doubt the most perfect yet seen in this country, and the entire program showed with how much care and thought the preparations had been made. Herbert Maxson



The winner—World T. Van Orman.

served as Manager of the local committee, ably assisted by V. M. Bondin; Carl Selberg of the National Aeronautics As-

sociation's contest committee was Rufus W. C. C. Chandler was Starter, Captain Johnson of the Army handled the weigh-off—in addition but a few of the many who supported toward the success of the event.

An article describing the meteorological features of the race and the notes followed by the leading contestants will appear in the June 26 issue of *Aviation*.

### Guggenheim School Officially Opened

The new \$500,000 building of the Daniel Guggenheim School of Aeronautics at New York University was officially opened on Saturday, June 3, 1927 when Daniel Guggenheim, founder, presented it to Chancellor Brown who accepted it on behalf of the University.

Mr. Guggenheim, Chancellor Brown, Dean Collins P. Bliss of the College of Engineering, and Assistant Secretary of Commerce William P. McCord, Jr., in charge of aviation in that department, were guests in their presence of Lindbergh and other trans-Atlantic fliers including Stinson and Gail. Mr. Guggenheim stressed that the purpose of the school was in the hands of the country's youth, and cited Lindbergh as an illustration of what aviation holds for the newborn year.

Mr. Guggenheim declared that it was through his son, Harry, an aviator in France in the World War, that he became interested in aviation and particularly in the foundation of the Daniel Guggenheim School of Aeronautics. Harry Guggenheim was present at the opening of the building and pressed an electric button that set the big wind-tunnel in operation.

### Mr. Guggenheim Pleased With School

Satisfaction with the progress of the school was expressed by the founder who said he had been informed that the enrollment was almost twice that of any other engineering department of the university, and that he was gratified that the tradition of the fund had made gains to the University Institute of Technology, University of Michigan, Leland Stanford Junior University and California Institute of Technology to assist in meeting aeronautical instruction crises.

"In addition, I understood that four other universities in this country have established other chairs or departments of aeronautics, where degree studies in aeronautics may be taken by engineering students," he added. "In my mind, a wonderful start has been made along this line looking to an expanded program in the airplane industry. Including the above universities, I understood that there are in this country a total of twenty-three universities and colleges offering special courses in aeronautical work."

"Where no first interest in the School of Aeronautics my thoughts have been largely devoted to the subject and I have become increasingly and enthusiastically interested in present day developments and their far-reaching effects."

"There has never been a middle of doubt in my mind as to the future possibilities, and now possibilities for the advancement of aviation, and the aeronauts have recently won the Captain Lindbergh award which has been a mark of prominence and personal triumph toward the subject. Frequently I am asked by young men who wish to take up the career of aeronauts what their chances are of securing positions after graduation."

### Telegram From Orville Wright

"It is as well that any youth who possesses a suitable course and is capable enough to complete it, looking to the future, should not be discouraged by the little difficulty in securing his place in the industry, and I look upon Captain Lindbergh as a fair example of what a young man of aviation, determination, resourcefulness and skill is able to accomplish."

Dean Bliss read a telegram from Orville Wright, Chairman of the Advisory Committee of the School of Aeronautics,

which read: "Report I cannot be present at the opening of the new building and the inspection of the laboratories of the Daniel Guggenheim School of Aeronautics. Please express to Mr. Guggenheim my personal thanks for what he has done for aviation. I know the splendid equipment he has furnished will be used by the university with the greatest profit to education."

Following the opening, Mr. Guggenheim and the guests inspected the building, beginning with the wind-tunnel, 110 ft. long and 15 ft. wide, in which air is driven at a velocity of



The Guggenheim School of Aeronautics, N. Y. University

180 miles an hour by an eight-blade aluminum propeller, 14 feet in diameter and propelled by a 200-horsepower motor.

Presented was from all branches of the science of aviation on an open lead to advance and prove the man who has done so much in the field of aviation. Chancellor Brown said that Mr. Guggenheim was the foster-father of commercial aviation in this country and that he had looked the heart of the world by sending his expedition to search for those who believe French, Swiss, Norwegian and Cuba, is the world capital of Newfoundland.

Professor Alexander Klumpp in a charge of the new school. At present it has an enrollment of forty-four students, but last year the Department has a enrollment of more than 100 and other individual sections of the engineering college.

### Junkee Freight Plane Sets Two More Records

On May 11 the two more records were established by the Junkers monoplane in Danzig, Germany, with their W-31 freight airplane setting a record of 400 mi. in 4 hours and 10 minutes, 400 by piloted by Hans Gertelbach.

The first was with a useful load of 1275 lb. over a course of 201 mi. the average speed reached was 120.6 m.p.h. The second was over a course of 625 mi. and with 1275 lb. useful load, the average speed of 112.5 m.p.h. was reached.

The previous record established with a machine of similar measurements over a 625 mi. course and without useful load ran less than 112.5 m.p.h.

### N.A.C.A. Publishes Report on Ground Effect

The National Advisory Committee for Aeronautics has recently published Report No. 268, A Full-Scale Investigation of Ground Effect by Elliott G. Zink. The report describes all flight tests which were made with a Vought VE-7 airplane to determine the effects of flying close to the ground. It is found that the drag of an airplane is materially reduced upon approach to the ground and that the reduction may be satisfactorily calculated according to Zink's and Doolittle's theories of ground effect. The report also contains many photographs and diagrams. Copies of this report may be obtained upon application to the National Advisory Committee for Aeronautics, Washington, D. C.

# The Anodic Oxidation Treatment of Duralumin

By LIEUT. COMDR. WM. NELSON (GC), U. S. N.

DURALUMIN is a structural material for aircraft is of little use to the airplane industry unless suitable means for protecting the metal against corrosion are followed. Of the many methods that have been tried, the electro-chemical means has proved to be particularly satisfying. Unfortunately, electro-plating aluminum alloys is exceedingly difficult and even after one has done a job with some degree of success the results, as far as the protection of corrosion is concerned, are disappointing. It has been noted in some cases of electro-plating that corrosion actually increased over what could normally be expected as a corrosion medium due to the electrolyte arising from the plate and the base metal. But aside from the plating medium, considerable work has been done on building up the oxide film on aluminum and duralumin by electro-chemical and straight chemical means as an added protection against corrosion. Perhaps the most successful of these is the anodic oxidation treatment due to electro-chemical means developed first in England.

The anodic oxidation treatment for aluminum alloys consists of oxidizing the surface of the part by making it the anode in a chemical cell solution through which electric current is directed. As can be expected, although small, there is an actual loss in weight due apparently to the loss of some of the base metal. The film produced is very dry, thin, and adheres to the base metal so firmly that it can be considered a part of the piece. The anodic oxidation treatment requires the plated surface ordinarily were on solid duralumin giving the material a light gray velvety appearance. This treatment renders the aluminum very resistant to corrosion in seawater, but the full benefit of this type of oxidized surface

is not obtained without the use of a final paint or varnish finish as will be pointed out later on.

It is perhaps possible to anodically treat the greater number of the aluminum alloys which are high in aluminum, but the practical application has been limited to those containing less than 5 per cent of copper. High current consumption has precluded its adoption for the aluminum-copper and aluminum-



Microscopic view of duralumin and aluminum anodized parts, which have been anodically treated.

alloys alloy, whereas the low breakdown voltage provides its use when more than 5 percent copper exists. The presence of colored steel, brass or other foreign metals in the aluminum part being oxidized cause complete failure to produce an anodically oxidized surface on the aluminum. When steel is present in the part being treated the current will not flow without the usual increase in voltage. Attempts to treat a duralumin coating with a steel wire in the heating were entirely unsuccessful. High copper alloys, such as brass and bronze in the bath with aluminum are dissolved by the operation. However, since the aircraft industry is gradually converting with aluminum and duralumin and since these come well within the range of the limits found, the anodic oxidation process is of increasing practical benefit here.

## Seal-enclosed Objects Treated Equally Well

It makes little difference what shape the material to be treated when under the influence of the film is concerned. The film forms wherever the liquid of the bath comes into free contact with the surface of the part so that tubes and other seal-enclosed objects are treated equally well on the inside surfaces as on the outside surfaces. This feature enters into the treatment of assemblies in being of major importance. Pipes and cracks in the aluminum ordinarily very minute are also treated provided the liquid enters these spaces. The value of this is readily recognized in view of the accumulation of corrosion in pipes, sealholes, cracks, etc. where the metal, unprotected, is subjected to a corrosive influence.

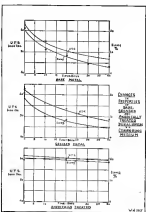
The current consumption during the operation of treating a piece of aluminum or duralumin is dependent on the area

of the exposed surface of the piece. Consequently sand blasting and other etching processes cause exceedingly high currents to flow compared to that produced with a similar volume of plain material. However, therefore, renders it advisable to avoid any unnecessary etching of the surface. Corroded duralumin which is being used in any reconstruction job should be cleaned by some other process than blasting or etching, if it is to be anodically treated. It is believed that some of the jobs in a corroded piece of metal are not satisfactorily treated by the process due to the products of corrosion in such jobs, so it is suggested on those looking for results to insure not only clean surfaces.

## Disadvantages in Treating Individual Pieces

The use of the tank, or the anodic apparatus is one limit on the size of the pieces that can be treated, the other is the degree with which subsequent finishes can be applied. An assembled job made up of tubes can be treated anodically very readily, but the problem of applying anodized or paint to the joints of the tubes after treatment may be difficult. In such cases it appears advisable to anodically treat the individual parts. The disadvantage of treating individual parts lies in the fact that the current into the oxide film. It is, therefore, advisable to treat in complete assemblies so it possible provided a relatively complete finish of paint or varnish can be applied afterwards. It is usually which is to be anodically treated, no varnish or compound should be applied to the parts during assembly, since the acid bath is able to move the compound and render it worthless. Tests on anodically treated parts show that the film is produced to a great very close to the parts on the flying surfaces. However, parts which are to be assembled to produce watertight joints should be anodically treated prior to assembly.

Good welds in aluminum and duralumin accept the anodic treatment very readily, producing a film over the weld which is as good as that on the ordinary surface. Welds poorly made do not take the anodic oxide efficiently. In such cases



Valve assembly subjected to the tank process in duralumin and the effects on physical properties of duralumin when anodically treated and anodized.

included flux is burned out and the film is discontinued. Welded aluminum joints, which have withstood the ordinary tightness tests and which have then been anodically treated have failed on tests due apparently to the washing out of the flux and other foreign substances. Incidentally the results obtained in an excellent test of the value of a weld in aluminum.

The anodic oxidation treatment is not known to affect the best treatment of duralumin nor does subsequent heat treatment affect the oxidation particularly, provided there is no work of the metal. This feature should not enter into any problems of the overall construction, however, for in most cases the oxidation usually occurs after the working and heat treatment are completed.

## Treatment Carried Out in Steel Tank

The anodic treatment is carried out in a steel tank of suitable capacity, the electrolyte being a dilute solution of chromic acid. The tank is so arranged that the temperature of the bath can be controlled, and so that the electrolyte is continuously agitated. Various means of heating, cooling and agitating the solution are practicable. The idea being the attack in the process, it is necessary to provide supports for the anodes or the pieces to be treated.

There is apparently no change in the bath due to operation excepting the evaporation of water. This evaporation is taken care of by the addition of water at periodic intervals so that the concentration of the solution does not change materially. It is considered advisable, however, to check the concentration of the solution at intervals to insure correct conditions. Also, whenever a dirt should not be allowed to accumulate in the bottom of the tank too long.

A motor generator set supplies the electrical power. The generator should be clean and should be fitted with a variable resistance in the field so that the voltage can be

(Cont. on page 1319)



Beneficial effect of anodic treatment and varnish on duralumin and steel spray corrosion.



## American Airlines Fly 23,000,000 Miles

More than 23,000,000 miles were flown by civil and commercial aircraft in the United States during 1936. It is estimated that this mileage of heavier-than-air craft is at least that of a total of 77,269 miles were flown by lighter-than-air craft during the year.

Reports from scheduled air transport operations and operations engaged in sightseeing, exhibition, advertising, photography, crop dusting and other kinds of aerial work indicate that approximately 23,000,000 miles were traveled by the flights of 1,528 planes during the past year, using an average speed of 89 m.p.h. as a basis of computation. If the Army, Navy and Coast Guard flying time were to be added to this figure, the total American air mileage for heavier-than-air craft would be 46,584,692 miles.

Flying over eighteen regular airways, 184 planes maintained a scheduled mileage of 4,474,172 miles in 1936. Reports from all air operations indicate that 95,361 passengers were carried on planes free of charge during the year. The number of paying passengers transported totaled 475,567. The total number of hours flown reported was 254,313 and pay freight revenue amounted to \$46,096.25. Reports to the Department of Commerce indicate that 4,908 stations were given service in aviation in 1936.

## Whaling Fleet Uses Planes for Spotting

Airplanes for spotting whales is the latest device employed by the whaling fleet in the Pacific in order to increase their catches. Captain McManamy, probably the foremost Pacific whaler today, who owns a fleet of steamers and several smaller whalers along the coast, is a believer in the airplane as a means of increasing the catch. He will have an airplane almost constantly on observation during the whaling season. The planes will fly over the favorite whaling ground west of Vancouver Island, seventy-five to one hundred miles out and keep the shore stations advised. Spotting a whale from an airplane is similar to spotting a submarine. In clear weather a whale is visible up to twenty-five miles. In spite of the declining catch in the North Pacific, the whalers, by the use of the airplane, expect to bring back the common catches to a figure approaching that of a year ago.

## Cairo-Cape Town Flight Ends Successfully

The flight of the Royal Air Force from Cairo, Egypt, to Cape Town, South Africa, and back, a distance of 11,000 miles, ended May 20, when four planes, under the command of Air Commodore Somerton, returned safely to the Egyptian airbase, at Cairo.

The flight, which began March 20, kept strictly to prearranged schedules. The engines ran perfectly and airframe and landing fields throughout the route were found in excellent condition.

One of the novelties of the flight was the sighting of four bands of elephants. At one time the planes flew low, crossing 150 elephants, which stretched at the approach of the machines.

## Curtis Pilot Goes to South America

W. H. "Mac" McMillen, one of the best-known pilots of the Curtiss Flying Service at Garden City, called recently at the South American to demonstrate Curtiss "Blacks" patrol planes in Chile. Two of these machines are now in Santiago, Chile, and McMillen will have charge of their operations and flights. He is following in the footsteps of Lieutenant Henry Doolittle and George Gaddis, who landed all South America last winter with their remarkable flight over the Andes in the big "Blacks."

McMillen is no stranger in South America, having spent a year there in 1935, demonstrating Curtiss products in the Argentine, and it was partly because of his experience that he was selected for his present work in Chile.

McMillen has been flying for the Curtiss Corporation since 1918 and has earned the reputation of being one of the best photographer and mapping pilots in the country. Perhaps his outstanding achievement in this respect was the mapping of more than three thousand square miles of the rugged Florida Everglades, from an altitude of ten thousand feet. He has also mapped all of Westchester and Roman Counties in New York, made aerial surveys for the entrance of high levees, power lines in Virginia and photographed several large cities, such as Greater New York, Syracuse, N. Y. and St. Petersburg, Florida.

## Characteristics of Propeller Sections

Report No. 289, describing "Characteristics of Propeller Sections Tested in the Variable Density Wind Tunnel," compiled by Edmund N. Jacobs, for the National Advisory Committee for Aeronautics, deals with tests that were carried out in the variable density wind tunnel of the National Advisory Committee for Aeronautics in six aerial sections used by the Bureau of Aeronautics on propeller sections. The sections were tested at pressures of 1 and 20 atmospheres corresponding to Reynolds Numbers of about 178,000 and 3,500,000. The results obtained, besides providing data for the design of propellers, should be of special interest because of the opportunity afforded for the study of scale effect on a family of aerial sections having different thickness ratios.

This report may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

## Dennison to Start Air Taxi Service

The Dennison Aircraft Corporation, proprietors of the Dennison Airport, Atlanta, Mass., will begin about June 18 the operation of an air taxi service to all parts of New England. Their flying school will also be in operation at that time. The Dennison Aircraft Corporation are the eastern representatives for the Kinner Aircraft & Motor Corporation, of Glendale, Cal., and the Eastern Massachusetts division for the Waco planes, manufactured by the Advance Aircraft Co., of Troy, Ohio.

## Conversation Between Plane and Ground

A striking demonstration of the developments which have been achieved in radio communication was given in Washington on May 5, when a conversation between occupants of an airplane and the head of the Commerce Department's Bureau of Standards, seated in his office, was broadcast by a regular commercial radio station for the benefit of all listeners within range of the station.

The participants in this broadcast conversation were Dr. George K. Burgess, Director of the Bureau of Standards, and W. H. Stott, head of the Aircraft Division of the Food Metals Corporation. Two days before, telephone and radio communication was effected on between the Assistant Secretary of Commerce for Aeronautics, W. P. Blackwelder, and an occupant of an airplane en route from Quantico, Virginia, to Bolling Field at Washington. This conversation, however, was not broadcast.

The conversation between Dr. Burgess and Mr. Stott took place about 12:34 p.m. and was broadcast through station WRC of the Radio Corporation of America. After the conversation had explained the details of the demonstration as to the radio station, Dr. Burgess presented a telephone operator to establish a connection with airplane 53 and the conversation ensued.

During the course of the conversation Dr. Burgess explained, for the benefit of the radio listeners, the importance of the experiment and the extent to which the Department of Commerce is assisting in the development of commercial aviation.

The development of the radio still has been restricted to the Bureau of Standards, stated Dr. Burgess. They are three in number, the direction radio beacon, which provides an aerial radio to keep air traffic on its course, marker beacons, which are small radio transmitters marking fixed points, such as radio towers, and radio telephony. The Government will establish ground stations for sending radio telephone messages to the airplanes and to keep one on the airplane will now and more be equipped with radio telephone transmitters, so that it, too, can communicate with ground stations to telephones to their friends on the ground.

## New Orleans-Pittstown Bids

Bids were opened at noon on May 27, for the operation of service between New Orleans and Pittstown, La., and between Seattle, Wash., and Victoria, B. C., for the handling of the mail to and from foreign destinations touching the port of New Orleans and Seattle.

Only one proposal was received for service on the Pittstown route. This was submitted by Arthur E. Condon at the rate of \$119 per round trip. Mr. Condon is the present contractor on this route.

Two proposals were received for service on the Seattle-Victoria route. The Northwest Air Service, Inc., Edward H. Hark, president, Seattle, Wash., made a proposal at \$105 per round trip. The other proposal was submitted by Leo Haker of Seattle, Washington, at \$900 per round trip.

The service over Seattle-Victoria is being taken up from the post office after ships for foreign ports have left the dock connecting the mail to the outgoing ship at Pittstown and Victoria. Mail from landing ships is picked up at these points and expedited in delivery to the post office. Airplanes are used in the service and mail is advanced several hours in both directions.

## Watson Gets Indiana Air King Agency

Earl C. Watson, of Brent, Ind., and former Army air service pilot has closed a contract with the National Airways System of Louisa, Ill., for the Indiana right of Air-King airplanes.

Mr. Watson states that there is unusual interest being manifested in Indiana in aviation. Many new students are being enrolled and it is anticipated he can expect to make the Air-King the most popular plane in Indiana.



Mr. C. Blackwelder, Director of the Bureau of Standards, is seen today seated in his airplane as he converses with a telephone operator to establish a connection with airplane 53 and the conversation ensued.

## Aeronautical Mechanics Organize

The mechanic engaged on the various flying fields in and around New York recently formed an association, which will be known as the Aeronautical Mechanics Association of America. An examination of the kind should grow rapidly and assume an important place among the various aviation sections of the country. This association serves all aircraft mechanics in the area.

The main reason for its organization is to promote good fellowship among the increasing number of people making up the ranks of those who work as mechanics in the industry. The officers and members of the association will all be employed as mechanics and applicable will be thoroughly indoctrinated before admission. By affiliating with the Aeronautical Mechanics Association of America, Curtiss Flying Field, Garden City, L. I., N. Y., full information can be obtained.

## Dr. L. Prandtl Awarded Gold Medal

At a recent Council Meeting of the Royal Aeronautical Society it was unanimously decided to award the Gold Medal of the Society to Dr. L. Prandtl in recognition of his remarkable outstanding work on aerodynamics. The delivery of the Fellowship Wither Wright Memorial Lecture by Dr. L. Prandtl was the occasion for the official presentation of the highest honor which the Society can confer. The Gold Medal has never been awarded to the following—

Wright Brothers, May, 1909; Prof. Chazotte, Orléans, 1910; E. T. Smeaton, 1910; Prof. H. L. Hays, May, 1915; Prof. Lanchester, May, 1920; Dr. Prandtl, March, 1927.



The four R.A.F. Fulmar biplane: Left, they completed the Cairo to Cape Town and return; Right, on the Egyptian airbase.

## Distinguished Flying Cross of Simple Design

The design of the Distinguished Flying Cross awarded by the President to Capt. Charles A. Lindbergh was approved by the War Air Corps on May 20, 1927, with suggestions for slight changes in a few minor details. It is of the traditional breast suspended from a silk ribbon. The colors of the ribbon are navy blue, black, white and white with a narrow red stripe in the center which also include the national colors of red, white and blue.



Distinguished Flying Cross

The medal which returned the approval of the War Air Corps was submitted by Miss Elizabeth Wall and A. E. Dubois, War Department employees on duty in the office of the Quartermaster General of the Army. A board composed of both Army and Navy officials passed upon the medal, which has also received the approval of both the Secretary of War and the Secretary of the Navy. Similar medals will be presented for the Pan-American flight, and for any other record achieved while in flight, to be given by the President upon their arrival in Washington.

## Geo. A. Wiles Announces New Flying Course

Announcement has been received from Geo. A. Wiles, Inc. of Memphis, N. Y., of what appears to be a new idea in flying instruction. Mr. Wiles is giving a "100 mile" flying course designed to teach a man to handle an airplane in the air. He reports that he finds many men, who for reasons of business or pleasure, want to learn to fly, but are not desirous of becoming professional pilots, and who therefore require a type of instruction entirely different from that usually offered.

The "100-mile" course consists of ten to fifteen flights of 4 to 10 miles each, interspersed with ground instruction on the art of flying. No instruction is given in landings or take-off, although the student is permitted to "fill-in" through the controls on several of each. *Wiles says* Geo. A. Wiles feels that most students can become quite proficient both in straight flight and in slow turns.

For this instruction Mr. Wiles uses a Cessna JN-1D, an OX Travel Air and a Warfield Travel Air. All are equipped with Pioneer Air Distance Recorders, the use of which eliminates all need for time records. Flights are measured in miles instead of in minutes as was formerly necessary.

It is understood that students who satisfactorily complete the "100-mile" course may continue their training, either to perfect their air work or to pursue landings and become full-fledged pilots.

This course was appended particularly to men employed in the engineering and manufacturing departments of local aircraft factories, and the first class of twelve has been recruited entirely from such plants.

## Wade and Wells Plan Record Globe Flight

Lieut. Hugh Wade, one of the three pilots in the army's 1931 world flight, and Lester Wells, holder of the record—the world record in twenty-eight days, fourteen hours, and thirty-one minutes, now planning a round the world flight in the hope of completing it in 15 days.

They will try to pilot a three engine plane across the seas, continents, jungles, and deserts of the known world. It is stated that a third man will accompany them in conducting radio operations and navigating, and between Japan and Ireland a fourth man, a seafarer, will wing them in their third spirit plane. It is planned to take the air from Long Island about 5 o'clock on the afternoon of July 10 and then fly in our key to San Francisco. The late start will be made in order to get them over Panamouth, absolutely one of the worst dates to fly over. By night, and on to the United States Air Mail track. The most fearful date because of the air mail fields will come as gales will drive at which time they expect to reach the first divide between Laramie and Billings, Wyo. From San Francisco they will cross the Pacific to Kona, Hawaii, in three jumps, stopping at Honolulu and Midway Island, and then on to Hialeah, China, across Siberia and Russia to Peking, London, Queenstown, St. John, and on to New York City. The distance to be flown is 20,622 mi. and if a week's schedule is maintained, the flight will be made in 260 hrs.

## Curtiss Flying Service Speeds Up

The Curtiss Flying Service, Inc., of Garden City, N. Y., reports that the first two weeks of May were the busiest in the history of the organization. Through crowded air-traffic from dawn to dusk, and Curtiss pilots flew almost day and night trying to accommodate passengers who wanted their first trip in the air. On Sunday, May 24, over three hundred and fifty passengers were carried and the total for the two weeks was something over eight hundred passengers.

In addition to the large amount of passenger business, the Flying Service was exceptionally busy in other phases of its operations. The call of the Atlantic Pilot to New York occasioned much interest and all of the several corporations, as well as several newspapers, elected planes to



Curtiss Pilot on Sunday May 24.

photograph the first from the air, while half a dozen night-sounding trips were made over the harbor carrying passengers who chose this method of getting a bird's-eye view of Uncle Sam's night sounds. Other operations included aerial photography and mapping and one night flight from Louisville to Cleveland with pictures of the Kentucky Derby.

The total flying time for two weeks was something over 165 hours and M. H. Merrill, manager of the Curtiss Flying Service, Inc., contends that 35 hours of paid commercial flying a day is somewhat of a record for any flying organization.

# FOUR WORLD'S RECORDS for the VOUGHT "CORSAIR"

ALTITUDE

32,178 Feet



Lt. G. E. HENDERSON, U.S.N.

SPEED

306 Kilometers



Lt. E. W. CALLAWAY, U.S.N.

SPEED

306 Kilometers



Lt. J. D. BARNES, U.S.N.

SPEED

1000 Kilometers



Lt. R. D. IRVINE, U.S.N.

A STANDARD Vought "Corsair" Naval Scaplane, on April 14, 1927, reached a record altitude of 32,178 feet, carrying a ballast load of 1103 lbs., and a total useful load of 1640 lbs. Pilot G. R. Henderson, U. S. N. Pilot.

THE same scaplane, on April 25, 1927, with the same ballast load and 1675 lbs. useful load, averaging 147 2/3 miles per hour for 100 kilometers around a 27 kilometer closed course. Pilot E. W. Callaway, U. S. N. Pilot.

ON April 26, 1927, the same "Corsair" scaplane flying around the same short 25 kilometer course, averaged 136.023 miles per hour for 100 kilometers, carrying 1880 lbs useful load including 1102 lbs. ballast. Pilot J. D. Barnes, U. S. N. Pilot.

AND still a fourth World's Record was made by the same "Corsair" scaplane on May 21, 1927, when an average speed of 130.93 miles per hour for 1000 kilometers was made over the same closed course! Pilot R. D. Irvine, U. S. N. Pilot.



The "Corsair" is designed in the P & W Wing Design

CHANCE VOUGHT CORPORATION  
LONG ISLAND CITY, NEW YORK



Lieut. S. W. Calloway, G. R. Henderson and J. D. Barner, U. S. N. in front of the "Wasp" against Vought "Corsair" airplane

## Three New World's Records for the "WASP"

This standard Vought Sciplane with a standard "Wasp" Engine holds the unique distinction of having established world's records for both altitude and speed. Particularly remarkable is the fact that Lieut. Calloway's average speed was more than five miles per hour greater around a closed course than the winning time in the two-place observation land plane race at the National Air Races in Philadelphia last year.

This remarkable performance is the natural result of superior plane and engine design, and skillful piloting. Again the Navy gives substantial proof that its flying officers and service equipment are second to none.

THE  
**PRATT & WHITNEY AIRCRAFT CO.**  
HARTFORD CONNECTICUT

### Altitude

On April 14, 1927, Lieut. G. R. Henderson, U.S.N. in a "Corsair" Sciplane reached 22,178 feet with a dead load of 1,102 pounds and a total useful load of over 1500 pounds

### Speed 100 Kilometers

On April 23, 1927, Lieut. S. W. Calloway, U.S.N. with the same plane and load averaged 147.263 miles per hour for 100 kilometers around a closed course.

### Speed 500 Kilometers

On April 30, 1927, Lieut. J. D. Barner, U.S.N. under the same conditions averaged 136.023 miles per hour for 500 kilometers.



## DARTMOUTH-TEX IS USED ON CHANCE VOUGHT PLANES



THE VOUGHT "CORSAIR"

## QUALITY is the watchword for every component in Vought planes

—and *QUALITY* is the controlling factor  
in the specifications of

### DARTMOUTH-TEX

aero-cloth and tapes for Vought planes —

DARTMOUTH-TEX is the name adopted for the aircraft which has been used by the leading aircraft manufacturers in America for 16 years. Dartmouth-Tex is a grade A, mercerized cotton, full count fabric, 36 inches wide for wings, tail surfaces and fuselage coverings.

It is guaranteed to meet the most rigid government specifications, and can be obtained on convenient rolls, which insure against creasing and wrinkling. It is not a processed fabric, although it can be applied in processed form if desired. Durable tapes of all kinds—surface tapes, packs, (sealings)—on any size required are ready for immediate delivery in all quantities.

Sole Distributor of  
DARTMOUTH-TEX

**W. HARRIS THURSTON**  
THURSTON CUTTING CORPORATION  
116-118 FRANKLIN STREET  
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THE LEADING GRADE "A" AERO-CLOTH FOR 16 YEARS



## NEW JERSEY VENEER CO.

SHERWOOD 5955

PATERSON, N. J.

*Furnished the Plywood used in the construction of the Record Breaking*

## VOUGHT NAVY "CORSAIR"

Grade "A" Plywood to meet current ARMY and NAVY Specifications.

We keep on hand Mahogany and Birch Plywood in stock sizes for rush shipments and on account of very large stocks of single ply veneers of various thicknesses we are able to ship in ten days plywood,

*Made To Your Dimensions.*



The "CORSAIR"  
Builder of Three World's Records  
manufactured by  
Chance Vought Corporation

*...and now record-breaking aircraft use*

## EDWARD SMITH PAINTS and VARNISHES

THE Edward Smith 100-year reputation for quality in marine paints and varnishes is the aircraft manufacturer's guarantee of finest finish and lowest ultimate cost.

Aircraft and marine craft meet identical conditions of exposure — wind, moisture, salt, heat and cold.

For an entire century Edward Smith products have unflinchingly proved their value on boats and yachts of every description — even to the famous winners of the International Cup Race.

Now these materials are winning a similar position in the aircraft field, where

beauty and durability of finish are paramount considerations.

The Chance Vought Corporation used Edward Smith products on their record-breaking "Corsair" as a natural result of over three years of practical tests on aircraft of their manufacture. Aquatite Spar Varnish, Esolac Lacquer, Esac Metal Primer, Aluminum Wing Enamel and Metalwood Enamel were used.

We shall be glad to demonstrate to other aircraft manufacturers the practical advantages of using Smith Paints and Varnishes for interior and exterior finishes and for metal as well as wood.

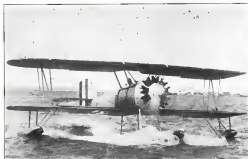


## EDWARD SMITH & COMPANY

LONG ISLAND CITY, N. Y.

*Makers of Marine Paints and Varnishes for 100 Years*





*The Record-breaking Vought "Corsair"*  
is equipped with a

## STANDARD STEEL PROPELLER



**S**TANDARD Steel Adjustable Pitch Propellers are not only helping to bring back air records to America, but are in regular service on modern Army, Navy, Air Mail, Commercial and privately owned planes.

## STANDARD STEEL PROPELLER COMPANY

*General Offices & Works*

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WEST HOMESTEAD, PA.



THE VOGHT "CORSAIR"  
Powered with Pratt & Whitney "Wasp" 425 h.p. Engine  
Equipped with

# SCINTILLA

AIRCRAFT MAGNETOS

SCINTILLA MAGNETO COMPANY, INC.

Contractors to the U. S. Army and Navy.

SIDNEY, NEW YORK

## A NAIL with a BULLDOG GRIP

Here is a nail that holds wing cloth on a building grip. Drives like a nail. Turns like a screw. Cannot pull out or work loose.

Just one example of the type of nails, rivets and screws we manufacture to meet the special requirements of many of the most prominent companies in the aircraft and automotive industries.

Send us your specifications. Any metal, size and quantity. Prices and samples gladly furnished.



*Enlarged drawing of pointed nail  
Size 10 - 100 years old - 1000  
100 - 1000 with long, double  
pointed tip*

## JOHN HASSALL, Inc.

*Established 1870*

Clay & Oakland Streets, Brooklyn, N. Y.

*Manufacturers of  
Nails, Screws, Rivets,  
Bolts, Washers, Brackets,  
Plates in various sizes*

*Manufacturers of  
Steel Pipe, Hot and Cold,  
Fire, Galvanized, Seamless,  
Various grades, and  
various other building*



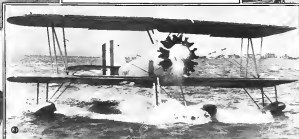
## Vought Planes the U. S. Navy Service on and Land

1. Vought O2U in action. Right: Vought Navy at the All-American Sports Bowl games under the stars of a ship. Washington, D. C. May 14-15. Honolulu at the Navy flying station at Anahulu, D. C.

2. Over the side. A Vought plane leaving the deck of the U. S. S. Maryland.

3. A second landing. The Vought plane at Hampton Roads, the Vought plane at Hampton Roads, the Vought plane at Hampton Roads.

4. A second landing. The Vought plane at Hampton Roads, the Vought plane at Hampton Roads, the Vought plane at Hampton Roads.





## HASKELITE helps break records

**I**N the Vought Navy Corsair plane that broke altitude and speed records for seaplanes, HASKELITE played an important part. This has been true in almost all recent record breaking performances.

At the air races last year—at the All American Aircraft Exposition this year—wherever the best in aircraft construction is seen, our oft repeated statement that 85% of aircraft plywood is HASKELITE has proven true. HASKELITE is not ordinary plywood. Its strength, light weight and waterproof quality are unequalled and so dependable that designers and builders naturally insist on its use.

*Blue print booklet on request.*

**Haskelite Manufacturing Corporation**  
133 West Washington Street Chicago

*We have furnished more than a score of*

## SUPERCHARGERS FOR USE IN VOUGHT PLANES SUPPLIED TO THE U. S. NAVY

*It is a privilege to add our congratulations  
on the recent achievements of the Corsair.*

**ALLISON ENGINEERING COMPANY**  
INDIANAPOLIS



**I**N the period of commercial aviation just ahead — when municipalities, corporations, and individuals fully realize the reliability, utility, and economic advantages of present day aircraft in competitive business activities.—

When the demand for aircraft strains production facilities and automotive history is eclipsed.—  
Production and development of "PARKER" tube couplings, fittings and fuel line equipment will keep pace with the demand.

Fuel flowed safely through "PARKER" tube couplings in the Vought Navy Corsair stock plane which brought back to America three World's seaplane records —these couplings will not need replacement—they are dependable for the life of the ship.

*A New catalogue fully descriptive of "PARKER" tube couplings and aeronautical fittings is in process — send for your copy.*

**THE PARKER APPLIANCE COMPANY**  
CLEVELAND, OHIO



**THE FUEL AND OIL TANKS**  
*of the Record-breaking Vought "Corsair"*  
were built by

**PARAMOUNT**  
PARAMOUNT WELDED ALUMINUM PRODUCTS CORPORATION  
46-41 SOUTH EIGHTH STREET, BROOKLYN, N. Y.



# ECLIPSE

## AVIATION STARTERS



Vought Ships, Models UO-1, FU-1 and O2U-1 are equipped with ECLIPSE Inertia Starters.

ECLIPSE MACHINE COMPANY  
HOBOKEN PLANT  
Hoboken, New Jersey

Elmwood, New York

Waltham, Ontario



ANOTHER RECORD BREAKER  
The VOUGHT "CORSAIR"

Flightex Fabric is used by Chance Vought Corporation for covering the wings, fuselage and tail surfaces of this phenomenal plane.

DEPENDABLE - STRONG - DURABLE

E. S. TWINING & CO.  
320 Broadway New York, N. Y.

# SAUZEDDE

## Wheel and Brake Units



are used on

# CHANCE VOUGHT PLANES

## SAUZEDDE UNITS

are also used by

Atlantic Aircraft Corporation  
Eastern Aircraft Corporation  
Fokker Aircraft Corporation  
General Aircraft Corporation  
Hamilton Aero Mfg. Co.  
Kearney Aircraft Corporation  
E. M. Lavit Aircraft Co.  
Schneider Mfg. Corporation  
Travel Air Mfg. Co.  
U. S. Government  
Yankee Aircraft Co.  
and others.

Prices and Specifications Furnished on Request

SAUZEDDE CORPORATION  
DETROIT, MICH., U.S.A.

# ARLISLE

made the

"BUOYANT" - "EASILY REMOVABLE"  
**SEAT CUSHIONS**

for

THE VOUGHT "CORSAIR"

KAPOK FILLED CUSHIONS are buoyant in water and removable—They pass government specifications for life preservers.

CARLISLE MANUFACTURING CO., INC.  
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New York City



## S. S. White Tachometer Drive Shafts

are stock equipment  
on all Chance-Vought Planes

Like most of the leaders in aviation, the Chance-Vought Corp. installs S. S. White Tachometer Drive Shafts on all of its models.

It's supply them to the  
U. S. Army and Navy

The S. S. White Dental Mfg. Co. has many years' experience in manufacturing superior dental and wire shafts for every industrial purpose.

All lengths carried in stock.

Samples furnished on request to manufacturers.

The S. S. White Dental Mfg. Co.  
Industrial Division  
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## ALL Metal Fittings

used on the famous  
**VOUGHT PLANES**

are manufactured by



**SMITH-HAFECOST  
INC.**  
129 Grand Avenue  
Brooklyn, N. Y.  
Established 30 Years

Our plant is equipped in equipment for the manufacture of engine parts and aircraft fittings for all aircraft requirements. Specialists in

**TOOLS, DIES, FIXTURES, JIGS,  
OF ANY INTRICATE NATURE**

(Send Specifications for Price Quotations)



## Roebling

### Control Cables



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### CHANCE VOUGHT PLANES

**John A. Roebling's Sons Company**  
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AT YOUR SERVICE  
**AERO SUPPLY MFG. CO., Inc.**

Manufacturers and Distributors of

### Airplane Accessories and Supplies

Call on us for anything. We will help you.  
**College Point, - Long Island, - New York.**

CHANCE VOUGHT CORPORATION

ON VOUGHT NAVY "CORSAIR"

USE—AS ON ALL THEIR PLANES

### THE PERRY-AUSTEN DOPES BEST DOPES MADE

MANUFACTURED BY

**PERRY-AUSTEN MFG. CO.**

STATEN ISLAND, N. Y.

Pioneer  
Dope Manufacturers

Contractors to  
U. S. Government



**The Vought "Corsair"**

carries

### PIONEER INSTRUMENTS

The instrument board of the "Corsair", illustrated above, carries the following instruments:

Pioneer Fuel Level Gauge (two)  
Pioneer Engine Gauge Unit  
Pioneer Vertical Tachometer  
Pioneer Brake & Vane Indicator  
VSI Compass, supplied by Pioneer  
Altimeter (Vane Surface).

All instruments for the "Corsair" were furnished to the Vought Corporation by the Navy Department.

**PIONEER INSTRUMENT COMPANY**  
756 LEXINGTON AVE. BROOKLYN NEW YORK

## Dayton Wire Wheels

used on

### All Vought Convertible Land and Sea Planes

## Dayton Wire Wheels

ALL PLANES & AUTOMOBILES

**THE DAYTON WIRE WHEEL CO.,**  
DAYTON, OHIO

We furnished the Curlew Aircraft landings during the War.

### BENT WOOD

The distortion of bent Ash wood 2" square shows the efficient bending method of wood bending processes we have developed and indicate no superior product in this field.

Oh Course We Pave the Vought



### SPECIAL AIRCRAFT ASH PLANK

**H. G. SHEPARD & SONS**  
NEW HAVEN, CONN.

## RUSCO SHOCK ABSORBER RINGS

Take shocks on multiple individual units

**High Safety Factor** — 100% or more  
Rings can be broken and a safe landing made — other rings do not have to be affected.

**Easy Replacement of Broken Rings** — Broken rings replaceable in a few minutes — other rings do not have to be disturbed.

### THE RUSSELL MANUFACTURING COMPANY

Manufacturers of shock absorbers and landing gear for all "Fighter" planes.

Sales Office — 340 Broadway, New York City. Factory — Middletown, Conn.

Write today for price list and literature. Also a copy of the "Safety Factor" and "Easy Replacement of Broken Rings" literature.



## CHANCE VOUGHT PLANES

are equipped with

## SEAMLESS STEEL TUBING

ROUND, STREAMLINE, ETC.

Furnished to Specifications of

STRAIGHT CARBON

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CHROME MOLYBDENUM

Specified by Aircraft Design—Manufacturers for 18 Years

## Summerill Tubing Company

Bridgeport, West. Co. (Philadelphia District) Pa.

## Vought Airplanes

ALWAYS GET THERE  
IN PERFECT CONDITION*They are Packed in  
Long Island Packing Cases.*We supply many large  
manufacturers with

PACKING BOXES

CRATES

SHEDS

CRATING LUMBER

## Long Island Packing Box Co.

Long Island City, New York



Used, Double  
De, with Log  
Packs—Vought  
Aircraft—  
with Steel  
Pack, Size—  
12' x 12' x 12'.

## In the Service of U.S.A.

They find nothing short of new. These men of the Army Air Service. They step early into their "BENT" harness before going up. And then as they sit comfortably with the "pack" attached, they forget it entirely. Yet it's ready for instant removal they need, or want it. And it gives them the confidence feeling of "ready for anything". Likewise with the U. S. Navy and U. S. Air Mail service.

Manufactured by

Irving Air Chute Co., Inc. AIR CHUTE  
523 Main Street  
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Cable Address "Trop. Buffalo"

Macwhyte Tie Rods  
on Vought Planes

MACWHYTE Streamline Tie Rods give 10% greater flying efficiency. Wind resistance is cut to the absolute minimum. We will be glad to tell you the details. Ask for complete information about Macwhyte Round Tie Rods for internal bracing, Macwhyte Company, 2907 Fourteenth Ave., Kenosha, Wis.

MACWHYTE  
Streamline TIE RODS

## VOUGHT AIRPLANES

1918-1927

TEN YEARS OF UNBROKEN PRODUCTION

## A Record Unexcelled

BACK of this record stands the confidence of the United States Navy and Army Air Services in the products of the organization which has never failed to produce new and better designs to fulfill their requirements, no matter how difficult the problem.

Back of this record stands the confidence of the men who fly—for they know their Voughts are built to stand the gaff; and those men will tell you of the ease and comfort with which these planes fly.

Back of this record stands the Vought purpose—to build the BEST AIRPLANE it is possible to build for the function to be performed. We have not spared, nor will we ever limit or stint, in any way, or in any thing, which will further that purpose.

Back of this record stand the men who design and build Vought planes—men who have been in the industry since the days of the Wright Brothers, as flyers as well as builders—and who know what should go into a plane to give real service and the highest possible performance.

The "Canard" is the latest example of Vought engineering leadership and superior design.

## CHANCE VOUGHT CORPORATION

Long Island City, N. Y.









## New Adjustable Pilot's Seat

Engineers at McCook Field have recently developed a simple type of adjustable pilot's seat. It is designed to enable pilots of different stature to locate their vision at the proper height. The seat itself is of aluminum alloy sheet with riveted angular plates. The four main sliding guides are of steel plate riveted to the seat. The guides are steel

## Exporting of Aircraft Products Increases

United States exports of aircraft, aircraft engines, and aircraft parts are showing a marked increase according to a report made by the Aeronautics Division of the Commerce Department. Reaching figures, total shipments of these items during 1936 were valued at \$1,030,000 which was an increase of almost a third as compared with the 1935 figures. The greater part of this increase was in engines with about eleven times as many made and nearly three and a half times the value of the 1935 shipments. Exports of aircraft, engines and parts during the first three months of this year were valued respectively at \$66,606, \$78,492 and \$308,709. The United Kingdom was our leading market for aircraft products in 1936, followed by Soviet Russia, Peru, Mexico, and Canada.

The preliminary figures covering aircraft production during 1937 indicate a substantial increase over 1936. There were produced during 1937, 3,253 planes, both land and water type, of which 123 were aircraft jigs according to a report made by the Bureau of the Census.

This is compared with a total production according to the Statistical Census of 769 in 1935; 567 in 1934; and 502 planes in 1933, showing a steady growth in production. The year was characterized by the large increase in number of newly completed designs offered for sale, the remarkable trend toward simplified engines for aircraft power plants, and the consequent trend toward the manufacturing industry by the adoption of a few basic building programs by the War and Navy Departments.

## Canadian Pilot to Try Ottawa-London Hop

Capt. E. L. Jansky, formerly of the Canadian Royal Flying Corps, announced recently that he will attempt a London non-stop flight from Ottawa, Canada to London, England, leaving off about June 30. His route, which will take him to Montreal, then down the St. Lawrence River to Beauport and then across the Gulf of St. Lawrence to Timapier Bay, Newfoundland. From Timapier Bay Jansky will get his bearings and head straight for the north coast of Ireland, whence he plans to fly direct to London.

A radio operator will be sent to the assistance of the plane will be carried by Captain Jansky. He has not decided on the make of craft to be used, although it will be a two-engine monoplane capable of carrying ample supplies.

Captain Jansky expects to make the flight as part of Canada's centennial celebration and hopes to arrive in London the following summer, Dominion Day. The celebration will mark the centennial of the independence of the British subject brought the provinces together under the Dominion Government.

## Captain Wilkins Takes Off From Fairbanks

Capt. George H. Wilkins, Australian explorer, and Alper Goodson, Detroit aviator, who are undertaking a new aerial expedition, took off recently from Fairbanks, Alaska for Peat Bay, the northernmost tip of the American continent. From Peat Bay, they plan to fly across the unexplored Arctic, heading north to the Arctic circle, and then in the hope of reaching Greenland, on to the north and east. The "Detroit News EP" failed to take on the first attempt, but eventually succeeded in getting into the air.

The distance from Peat Bay to Greenland is 1,600 miles and Wilkins and Goodson face the prospect of spending the summer on the ice and waiting out of their plane is doomed. Wilkins hopes to be able to determine whether the failed aerial contact could not be with other explorers beyond and other scientific data may be of value in future aerial aviation. From Peat Bay, Wilkins has laid out an unbroken route through the top one of the polar ice fields. This route has never been traversed by any of the many ships which have been in that direction in spite of great indication of the possibility of land in this area.

## Anodic Oxidation Treatment of Duralumin

Cont. from page 1232

tion on the part of the protective treatment one of the greatest difficulties in coating duralumin—that of making the joint or vertex surface. In addition it places the protection in a place where the acids and the coating work together with the surface again.

From the various point of view the combined effect of anodic treatment and a protective is an approach toward the ultimate to be expected.

London, and preventive compounds, grease, varnishes and paints can be used effectively on anodically treated parts. The first three are only to be regarded as temporary means of protection, whereas varnishes and paints are permanent. Tests conducted on the laboratories showed that there is little difference between London and anodic in the resulting resistance to strength due to corrosion. Sufficient tests have not yet been made to show the best combination of varnishes and paints to use on anodically treated duralumin, but the same rules should hold here as have been established for untreated aluminum alloys.

## Practically Eliminates Corrosion

There is one important feature connected with the application of compounds on anodically treated duralumin that was not taken into account. When the metal leaves the bath, is rinsed, and then dried, all the surface is very dry making for an ideal condition to apply grease or varnish. If a coat is not applied at this time corrosion begins and additional work must be done. It has therefore been found that the application of the primer of the finish need to be done at this time.

Many modifications of test have been made on the anodic treatment of duralumin or aluminum, but in each case they have been based on experimental apparatus which is usually expensive. A high test cost for proper and efficient anodic treatment results in low operating costs per unit of material treated, and low first cost with inadequate equipment at a high operating cost. With most tests, measuring the rate of material being used in strength, the anodic oxidation cost should not be greater than a few cents a square foot of metal and duralumin cost per part.

The greatest standing block of these many duralumin anodic treatments has been corrosion. The anodic process has been a measure removed this difficulty, and bids this to be the foremost of the better means of protecting the metal in service. It should regularly be even more important to a protection for duralumin in the aircraft industry, thus giving us hope for the prevention of corrosion in steel.

## Austin Meets Hangar Problems

The growth of commercial aviation has called for a more developed in terminal construction, better maintenance and servicing of planes. The Austin Company, of Cleveland, Ohio, have endeavored to keep pace with this expansion and for the past few years have kept abreast of all the latest developments in the aviation field.

Austin engineers, working for the construction of standard types of hangars, have given careful study to the advantages and disadvantages of the various kinds and have sought to address to corporations and municipalities contemplating an airport or facilities for the shelter and care of aircraft.

The Austin Company have designed and constructed hangars for some of the leading aircraft manufacturers of the country.

## Plane Flies Over Washington's Route

A de Havilland airplane flew from Fannett Towers, New York City, over the Long Island coastline through which Washington passed, on May 18, and back, the plane making the trip in 1 hr., 22 min. Washington is a much and four took twenty-eight hours to complete the journey.

The plane was piloted by Larry Norman B. Longhew and Larry Norman B. Stuppan was in the plane as observer. The machine passed over Brooklyn, Atlantic, Hempstead, Amityville, Syosset, Great Neck, Nassau, Washington, Rockville and Flushing.

## Gliding Records

Frederick Schulte on May 3, at Pomona, East Prussia, Germany, established a new World gliding record, for a continuous glide, when he remained in the air for 14 hr., 5 min. The former glider record was held by Maxime, a Frenchman, who remained in the air 10 hr., 43 min.

On May 10, Schulte added a new record to his list by covering an aerial distance of approximately 30 mi without landing. He stayed at Hoesen, Italy, Zanzibar, where an expedition plane was being held. The new record exceeds the old one by more than 5 mi.

## New American Eagle Distributors

The American Eagle Aircraft Corporation, of Kansas City, Mo., just made the announcement that H. M. Brinkley, of Dallas, has been appointed their Texas distributor and L. M. Truett, of Detroit, their agent in Michigan.

Adjustable Pilot's Seat

When forming part of the structure of being very directly attached to it. The rubber sheet is adjusted to support part of the weight of the pilot in that the seat follows automatically the position selected by the pilot.

To make an adjustment the operating handle must be pulled to release the latch; then the pilot must release part of his weight from the seat and should adjust himself to the required position; then the handle can be released and the full weight loaded to the seat. The latch will engage into the hole next to the selected position.

## Bolivia to Subsidize Commercial Aviation

A presidential decree has been signed granting a contract between the Bolivian Government and a newly-organized air transportation company, the "Compania Boliviana de Transportes Aereos," calling for an annual subsidy of approximately \$60,000, to be paid the company in quarterly installments, one regular service is established over at least one of the following lines. The proposed lines are: (1) La Paz to Orizaba, with landings at Bogota, Trinidad, Villa-Bella and Bahama; and (2) La Paz to Rio.

The decree also grants to several stipulations, of which the following are the most important:

1. To establish within six years a regular service of five times daily on each of the lines.
2. To maintain a minimum of five aircraft on each of the lines.
3. To carry 1000 tons of cargo in each of the lines.
4. To carry 1000 tons of cargo in each of the lines.
5. To carry 1000 tons of cargo in each of the lines.
6. To carry 1000 tons of cargo in each of the lines.
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8. To carry 1000 tons of cargo in each of the lines.
9. To carry 1000 tons of cargo in each of the lines.
10. To carry 1000 tons of cargo in each of the lines.



The new three-story of the Detroit Metropolitan Airport Co., opens July tomorrow from Detroit. Here it is to be built the upper West in early June 1937.



# AIRPORTS AND AIRWAYS

## Maline, Ill.

Maline is geographically situated in the center of a group of four municipalities, all on the banks of the Mississippi river, with a combined population of 175,000. To the north is Des Moines, in the west, Rock Island and to the east, East Moline. These four cities are generally referred to as the Quad-Cities. The Maline Airport is situated three miles south of the city, on a paved state road. Franklin Field, the site of the Maline Airport, is abutted located on a flying field. It consists of a tract of 120 acres of level land, well drained, with a subsoil of gravel, and covered with thick matted grass. It is free from natural obstacles that would make the taking-off and landing of planes dangerous. Due to these natural advantages, it was selected as a landing point for the first Combs-Doolittle flight in the Fall of 1920.

In 1919, R. K. Campbell and Roy McDevitt flew into Maline, landed their planes on a pasture on the Maline River, below Prospect Park. They stayed two days and did a damaging business carrying passengers. During 1920, Gustaf De Schaepper started taking instruction at Wilkes Field, Bettendorf, Iowa. When he made his initial flight, April, 1922, he was the first Maline to become an active aviation pilot. In 1923, a small field was rented above Calumet Ave., on the Weaver farm. Wesley Smith became the instructor, while Fred Kottner, the second Maline to become a full-fledged pilot. Dr. G. G. Stone then became interested and advised Wesley Smith. Al McDonald completed his training about the same time.

The efforts of Maline soon gained that the Calumet Ave. field was too small for safe and successful airplane operation, and in November, 1923, 30 acres of Franklin Field were leased. De Schaepper, Kottner and Dr. Stone forming a partnership. A three-plane hangar was erected and later a single-plane hangar for Kottner's plane was built. Wesley Smith went back in 1925 to become associated with another successful enterprise. The following year R. K. Campbell was invited to take charge of the field. He returned to Maline in the Fall of that year with his associates, Ray B. Quakey. In the Spring of 1926, aviation activities began in earnest. A Lalair-Gardner was purchased. It carried two passengers. In the same year, a Thomas Moore, motor-engine, single-engine aircraft was added by Gustaf De Schaepper. Another hangar was erected at Franklin Field during the Fall of 1926 for a new standard, bringing the total planes to five. At the same time a long line on the entire field was acquired. A paved road was built past the field, sufficient across to the airport. Along this road, a better station and a valuable new business, 56 by 48 ft., were erected. 60 ft. wall was drilled, to provide a permanent water supply, and an electric light plant installed.

At the end of Maline had been longed for and much excitement had been carried on to that end. At a meeting of the V. A. T. officials and the Aviation Committee of the Maline Chamber of Commerce, the details were gone into thoroughly. The Campbell-De Schaepper Company agreed to

put their field at the disposal of the N. A. T. free of charge for one year. The Chamber of Commerce agreed to provide the hangar required for the starting of an emergency mail plane, together with the necessary office and repair facilities. Before Col. Paul Henderson and his party left the city, the contract for the building had been signed and the funds had been pledged.

The N. A. T. selected the Gordon-Figges plane for the Chicago-Moline-Buffalo route. The first one reached Maline Feb. 25, 1926. The other planes followed shortly. On Wednesday, May 13, the air mail service was inaugurated. In November, 1926, the N. A. T. signed a contract with the American Express Co. for the transportation of packages by plane from New York to Chicago, overnight, and thence to Moline and Dallas. This new service is scheduled to start during 1927. On November 13, 1926, the N. A. T. started passenger service with a Ford-Stout all-metal monoplane, powered with a Wright Whirlwind engine. The plane arrived in Maline with a full complement of passengers, among them its builder, W. R. Stout, and Colonel Henderson.

The Maline Airport is thoroughly equipped to train students. The school is open all the year. Anybody applying is given students to acquire themselves in the ground school with the mechanical details of engine and plane. A well-equipped shop, with expert service, is at the disposal of emergency planes at all times. Goodness and all can be obtained in any quantity. A plane or a pilot are available at all times for work on the ground, whether for industrial or survey purposes. Cross-country trips can be arranged for at any time, at the option of the prospective traveler. Baggage bags were incorporated in 1927 between Maline and Chicago. A cross-country travel. Air cables connect Maline with a Wright Whirlwind engine in use. The plane leaves the Maline Airport at 7:00 a.m., arriving at Chicago at 8:40. It leaves Chicago for its return trip at 6:08 p.m., daylight saving time, at 9:08 p.m. Central Standard Time.

## Houston, Tex.

Five thousand people came to the Billings Field, at the Houston Airport Transportation Company, recently to witness the air transport demonstration. Major J. Houston, assistant general manager at the Houston Chamber of Commerce, opened the event with a speech and a prayer. He stressed the importance which had been provided that the demonstration was thorough. To demonstrate the safety of air transportation, to make the citizens of Houston acquainted with the plane to provide education with a municipal airport and to make an air mail airport known to increase the prestige and use of Houston.

Ray A. Kunkin gave a description of air mail purposes and possibilities and Capt. Paul S. Wilbur, chairman of the program, then opened the event.

Major Walter H. Bond, commanding the 36th Division Air Service, flying a large C-3 Douglas observation plane from Elkhart, Ind., stopped his way down to a landing in front of the crowd, to make a "fly-by" in his plane. The spectators on the fringes of the place, which was not by a mile from the post office and located (theoretically) with a cargo of mail for Chicago and New York. Taking off, Major Bond flew around the field and returned, making a maneuver of a loop for Houston from New York and Chicago. Capt. Frank Hawks of the Raymond Foreman Aerial Company explained through the amplifier that air mail from Houston to Chicago consisted of 21 tons and New York 24 tons; that is, letters mailed from Houston by air and would be delivered in Chicago in precisely the same length of time as if they were by railroad mail service from Houston to Fort Worth, and then by mail to New York in the same time as railroad mail from Houston to New York.

The plane flown by Major Bond was a 10 cylinder 400 hp. Liberty engine capable of 140 m.p.h. high speed and 120 m.p.h. cruising speed. It carried 172 lbs. of gasoline, sufficient for 75% by sustained flight.



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Metals workers, welders, steel and dovetail experience. Men who can produce, wire or cast, stamp and experience, salary expected, etc. Women, 16 East 11th, Tulsa, Oklahoma.

FOR SALE CHEAP: Fokker D7 newly rebuilt powered with Hirth motor. Curtiss J3H like new powered Hirth Motor. Standard J1 three plane power OXS. Also Hirth motor and parts. E. D. Anderson, 136 Crofton Ave., San Antonio, Texas.

YOUNG MAN wants work with aircraft company or individual. Experience. American School of Aviation home study course, understood maintenance of planes and motors, worked three months in aircraft factory, and have some flying time. Will consider going to South America. Box 655, Aviators.

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WANTED for Gates Flying Class two licensed transport pilots. Must thoroughly understand Hirth. Also two good licensed airplane mechanics, both paying \$10 in salary in right man, old timers only. Neither ever sleeps. Address mail only, giving full qualifications first letter. Gates Flying Class, 236 Whitwell Building, New York City.

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WANTED Ponder Grouse. Must be in good shape. Will pay cash. Wm. Wagner, Inc., 211 Broadway, Long Beach, N. J.

FOR SALE: Cessna 440 300 yd. Picked up by 500 yd. Gasoline filter mounted to keep all water and dirt from carburetor and jet valve \$215. O. J. Mosley, 1229 Washington St., Burlington, Iowa.

FOR SALE: Homebuilt OXS motor can make no complaint but in 1925. Complete with tools in Carlin's note, Serial No. 4000 \$550 if sold at once. Address Box 625, Aviators.

New machine level pages complete, \$750. Three magnets, new, for OXS motor \$15.00. New tachometer, chronometer, wide graduation, easily read, \$10.00. New type pressure gauges \$2.00. Brand new OXS motor \$250.00. Air Transport Equipment, Oak Park, N. Y.

FOR SALE: Thomas Moore OXS had 22 hours A-1 shape with the following specs: 2 lower and 1 upper camp, new oil struts and wires. Ready to fly over, \$240.00. Y. A. Walsh, Schenectady, R.P.D. 3, N. Y.

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350 HP Hirth Standard and new motor recently overhauled, 20 gal. gravity tank, ready to fly over, \$240.00. James Sherry, 8th and North E. Richmond, Indiana.

OXS Standard, five condition, low maintenance, weighs nearly new motor. Old motor, new Prop., complete tank, \$280 cash. Located at South Oakeville, Ohio. Five samples high grade cotton fabric, 36 inch. Robert Schaefer, 3318 Hart Ave., Detroit, Mich.

ATTENTION: Graphite valve guides threaded into OK cylinders. Removably valve seats installed. Prices not prohibitive. Prices and description. Members open request. Illinois Flying Company, 507 Locust St., Stirling, IL.

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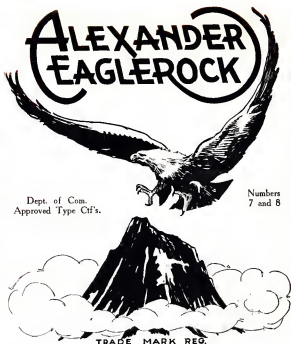
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# Lindbergh's Endorsement



In February 1927, "Slim" Lindbergh flew an Alexander Eaglerock, enthused over its qualities and construction and then asked the demonstrators from Alexander Aircraft Company to build him a Whirlwind motored Eaglerock for a New York to Paris hop.

President J. Don Alexander realized the importance of Lindbergh's offer and agreed with him that a Whirlwind motored Eaglerock was a logical job for the trip but — orders for the standard type Eaglerock needed to be filled and rather than break the line of production, Lindbergh's offer was rejected.

Let all due credit be given to the intrepid and successful flyer, his gallant ship and the Whirlwind motor that carried through. The fact still remains, that the —

**EAGLEROCK WAS SLIM'S CHOICE.**

## LETTER

St. Louis, Mo.,  
February 7, 1927.

Alexander Aircraft Co.,  
Denver, Colo.

Gentlemen:

I wish to add my small share to the general sentiment for your Eaglerock. I have been rather skeptical on the average "new production" job for "commercial" work.

At the present moment my opinion is entirely changed. I never hoped to see any OX-5 motored ship perform as the Eaglerock performed for me during the severe test I gave it some days ago. I have never felt as though I could trust implicitly in any new production commercial ship, until I had the pleasure of piloting this Eaglerock. I climbed in doubtful and climbed out a convert.

It is the most beautiful performing thing I have ever flown. It has strength and a degree of maneuverability heretofore considered hopeless in any aircraft.

I am, of course, speaking of commercial ships and not of army pursuit or other high-powered army types.

Very truly yours,

(Signed) Charles A. Lindbergh,  
Chief Pilot, St. Louis-Chicago Air Mail.

